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10/559,704	12/07/2005	Taisuke Hirooka	60303.55/ok	1845

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EXAMINER	
GARCIA, CARLOS E	

ART UNIT	PAPER NUMBER
2627	

NOTIFICATION DATE	DELIVERY MODE
11/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/559,704	HIROOKA ET AL.	
	Examiner	Art Unit	
	CARLOS E. GARCIA	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-44* is/are pending in the application.

4a) Of the above claim(s) *40-43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-39,44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/18/2008,4/25/2008,1/12/2007,12/07/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

NON-FINAL REJECTION

Election/Restrictions

1. Applicant's election without traverse of claims 23-39 and 44 in the reply filed on 8/05/2009 is acknowledged.

2. Claims 40-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/05/2009.

Drawings

3. Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 23-39 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 includes the limitation: "wherein the intermediate layer is made of a material other than the aluminum oxide" which is a negative limitation that renders the claim indefinite because it attempts to claim the invention by excluding what the Applicant's did not invent rather than distinctly and particularly pointing out what they did invent. *In re Schechter, 205 F.2d 185, 98 USPQ 144 (CCPA 1953).*

On line 3, of claim 38, the limitation: "an electrical/magnetic transducer, which is provided on the undercoat film of the thin-film magnetic head substrate", is repeated in claim 23. The claim should be modified to further define the invention.

Claim Objections

7. Claim 33 is objected to because of the following informalities:

On line 2, the phrase "an Si film" should be --a Si film--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 23-24, 33, 38-39 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato (GB 2391104).

Re claim 23: Sato discloses a thin-film magnetic head substrate (the layer structure in Fig.2 for instance) comprising:

a ceramic base (layers 1/2 see page 12, line 15 to page 12, line 4) with a principal surface (top surface of layer 2 in Fig.2); and

an undercoat film 5a, which is made of an aluminum oxide and which covers the principal surface of the ceramic base (placed on top of surface of 2), an electrical/magnetic transducer 6 being provided on the undercoat film,

wherein the substrate further includes an intermediate layer 3 between the principal surface of the ceramic base and the undercoat film, and

wherein the intermediate layer is made of a material (NiFe) other than the aluminum oxide and has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film (in Fig.2; 5a contacts top surface of 2).

Re claim 24: Sato further discloses wherein the intermediate layer has an opening (by way of 5a) where the electrical/magnetic transducer is not located (Fig.2).

Re claim 33: Sato further discloses wherein the intermediate layer is made of a metal film or a Si film (NiFe).

Re claim 38: Sato further discloses the thin-film magnetic head slider (as shown in Fig.1) comprising: the thin-film magnetic head substrate of claim 23; and the electrical/magnetic transducer, which is provided on the undercoat film of the thin-film magnetic head substrate (as discussed previously regarding claim 23).

Re claim 39: Sato further discloses a hard disk drive comprising the thin-film magnetic head slider of claim 38 (as indicated by on page 1; the magnetic head structure disclosed is used in a hard magnetic disk drive).

Re claim 44: Sato inherently discloses a method of making a thin-film magnetic head slider, the method comprising the steps (pages 22-39) of:

preparing the thin-film magnetic head substrate of claim 23 (as discussed above for claim 23); and

fabricating the electrical/magnetic transducer on the undercoat film (as shown in Fig.1-2).

10. Claims 23-26, 33-34 and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Edelman et al. (US 2005/0174687; hereinafter Edelman).

Re claim 23: Edelman discloses a thin-film magnetic head substrate (in Fig.5, for instance) comprising:

a ceramic base 118 (sample materials indicated in para.0026) with a principal surface (top surface of 118 in Fig.5); and

an undercoat film 134, which is made of an aluminum oxide (such as for layers 54/56 in para.0032) and which covers the principal surface of the ceramic base (formed on top of the top surface of 118 in Fig.5), an electrical/magnetic transducer 116 being provided on the undercoat film,

wherein the substrate further includes an intermediate layer 124 between the principal surface of the ceramic base and the undercoat film (between top of layer 134 and top of layer 118), and

wherein the intermediate layer is made of a material (such as for layer coil 44 in para.0030) other than the aluminum oxide and has been patterned so as to make a portion of the principal surface of the ceramic base contact with the undercoat film (rear portion away from the air bearing surface 138).

Re claim 24: Edelman further discloses wherein the intermediate layer has an opening where the electrical/magnetic transducer is not located (on rear portion away from the medium 146).

Re claim 25: Edelman further discloses wherein the electrical/magnetic transducer provided on the undercoat film includes:

a lower magnetic shield film 130;

a magneto-resistive element 132 arranged on the lower magnetic shield film; and

an upper shield film 128, which has been deposited on the lower magnetic shield film so as to cover the magneto-resistive element, and

wherein the intermediate layer has been patterned so as to cover the entire projection (layer 124 stretches beyond the rear portion of 132) of the magneto-resistive element on the principal surface of the ceramic base.

Re claim 26: Edelman further discloses wherein the intermediate layer has been patterned so as to cover the entire projection of the lower magnetic shield film on the principal surface of the ceramic base (Fig.5).

Re claim 33: Edelman further discloses wherein the intermediate layer is made of a metal film or a Si film (Cu for example).

Re claim 34: Edelman further discloses wherein the intermediate layer is made of a material selected from the group consisting of Cu, alloys including Cu, Cr, alloys including Cr, and Si (para.0030).

Re claim 44: Edelman inherently discloses a method of making a thin-film magnetic head slider, the method comprising the steps (as discussed above) of:

preparing the thin-film magnetic head substrate of claim 23 (as discussed above for claim 23); and

fabricating the electrical/magnetic transducer on the undercoat film (as shown in Fig.5).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 32 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato. The teachings of Sato have been discussed previously.

Re claims 32 and 35: Sato discloses the claimed invention except for wherein the intermediate layer has a thickness of 1 nm to 1 μm, as recited in claim 32 and wherein the undercoat film has a thickness of 10 nm to 1 μm, as recited in claim 35.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thicknesses of each layer for the purpose of changed the conductive and/or magnetic characteristics of each layer, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Re claim 36: Sato discloses the claimed invention except for wherein the ceramic base is made of an alumina-based ceramic material including 24 mol % to 75 mol % of .alpha.-Al.sub.2O.sub.3 and at most 2 mol % of an additive.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the substrate material composition of Al_2O_3 in the substrate layers for the purpose of modifying the conductive properties of the substrate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Re claim 37: Sato further discloses wherein the ceramic base further includes a carbide or nitride carbonate of a metal (Al_2O_3-TiC).

13. Claims 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Hirooka (JP 2004-127442). The teachings of Sato have been discussed previously.

Re claims 27-31: Sato discloses the claimed invention except for wherein a portion of the intermediate layer makes an alignment mark for use in positional alignment, as recited in claim 27; wherein a portion of the intermediate layer makes a pattern representing identification information, as recited in claim 28; wherein the identification information includes information about the identity of the ceramic base, as recited in claim 29; wherein the pattern representing the identification information has been recorded on a plurality of areas of the principal surface of the ceramic base, mutually

different pieces of the information being distributed to the respective areas, as recited in claim 30; or wherein the areas are arranged so as to form multiple different thin-film magnetic heads when the substrate is divided, as recited in claim 31.

The prior art of Hirooka also teaches the known technique of placing a identification information on a surface of the substrate layer of a slider or multiple sliders during manufacturing (para.0049-0055). Furthermore, Hirooka teaches that the substrate can include an alignment mark (para.0076-0077) on the slider or the identification information is unique to each substrate and that such information can be placed on multiple slider bodies during manfacturing (Fig.1-5) (see para.0020-0031), as recited in claims 27-31.

Therefore, a person of ordinary skill in the art would have recognized that applying the known technique of using the alignment mark or identification information pattern for slider substrates layers, either on the substrate principal layer or other layers placed on the substrate, for the purpose of aligning the slider and providing identification data for the slider would have yielded predictable results and would have eased the manufacturing process of the slider substrates.

Conclusion

14. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS E. GARCIA whose telephone number is (571)270-1354. The examiner can normally be reached on M-Th 9am-5pm F 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Andrea can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. E. G./
Examiner, Art Unit 2627
10/14/2009

/Andrea L Wellington/
Supervisory Patent Examiner, Art Unit 2627